ABSTRACT OF CAPSTONE

Harry E. Burchett

The Graduate School

Morehead State University

April 10, 2018

JOHNSON COUNTY SCHOOL DISTRICT'S ONE-TO-ONE CHROMEBOOK INITIATIVE VIDEO

Abstract of Capstone

A capstone submitted in partial fulfillment of the
Requirements for the degree of Doctor of Education in the
College of Education
At Morehead State University

By

Harry E. Burchett

Paintsville, Kentucky

Committee Chair: Dr. Michael W. Kessinger, Assistant Professor

Morehead, Kentucky

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JOHNSON COUNTY SCHOOL DISTRICT'S ONE-TO-ONE CHROMEBOOK INITIATIVE VIDEO

The Johnson County School District (JCSD) is in the process of transforming how teachers teach and how students learn. This transformation is the product of a multi-year plan to shift the learning process from a stand-and-deliver model to a student-centered, student-driven model utilizing the power of connectivity via the district's one-to-one (1:1) chromebook initiative. This executive summary and related capstone is intended to demonstrate this learning transformation process and establish a guiding product available for any who wish to study this initiative of the JCSD. The capstone product, a video series, will provide future students and employees both a historical perspective and implementation guide to help ensure continuity and systemic implementation of the program. The capstone product can be a beneficial resource for any generalizable district interested in embarking on a 1:1 initiative like that in the Johnson County School District.

KEYWORDS: One-to-One, Chromebook, Technology Integration, Flipped Classroom, Instructional Change

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Candidate Signature

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Date

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By

Harry E. Burchett

Approved by

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DEDICATION

This capstone is dedicated to my parents, Leon and Patricia, who as educators have always supported me throughout life, but most importantly in my educational endeavors including this pursuit.

To my wife, Kathleen, son Harrison, and daughters Olivia and Madelyn for sacrificing important family time and events so that I could complete this life long goal. Without your sacrifices, this achievement could not be possible.

To my sisters, Barbara Ann and Rebecca Lynn, both constant overachievers who have pushed me competitively throughout my life.

To my In-Laws for providing hot meals and a roof over my head throughout many years of graduate education courses at Morehead State University.

To my grandparents who grew up in the early twentieth century, experienced the great depression, and survived WWII yet laid the foundation of high expectations for both my mother and father.

To my educational colleagues for supporting my endeavors and offering advise and expertise when I most needed it. To my family and friends who have always been there for me when I needed them the most.

And finally, to Cohort VI, which without their constant presence I may not have completed. The encouragement and support offered by every one of these individuals and groups will not be forgotten.

ACKNOWLEDGEMENTS

This capstone is the product of my career in education and would not have been possible without the numerous contributors along my journey. There are so many people to thank that I can not possibly do it in the short time available here. For that reason, I would like to thank everyone with whom I have both worked and came in contact with during my professional career.

I do wish to thank my committee chair, Dr. Michael Kessinger. As both a professional in education and a graduate student, I have worked with Dr. Kessinger for over twenty years. During this period he has served as a colleague, instructor, mentor, and friend. I would not be at this milestone in my life without his support and guidance.

I also want to thank committee members Dr. Daryl Privott and Dr. Kermit Belcher for their continued support and encouragement. Dr. Privott has helped provide a new lens into the educational importance of equality versus equity. Dr. Belcher has been a friend and colleague in education technology for which I could reach out to for support during much of my career.

Finally, I want to thank the Kentucky educators who helped to educate me at Porter Elementary, Central Elementary, W. R. Castle Elementary, and the Paintsville School System. Each of you left a positive and ever lasting mark on my personality and intellect, helping make me the person I am today. This final and special thanks to Mr. Steve Trimble for providing me numerous opportunities to help him lead the Johnson County School District and community as a young educator.

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Executive Summary

What is the core of the capstone?

Historical context. The Johnson County School District is located in eastern Kentucky and is nestled among the foothills of the Appalachain Mountain Range. Geographically it falls less than 30 miles from the West Virginia border to the East and less than 60 miles to both the Ohio and Tennessee borders North and South. The school district consists of five elementary schools serving grades K-6, one middle school serving grades 7-8, one high school serving grades 9-12, and one alternative school serving grades 7-12. Headstart and Kentucky Preschool programs are embedded within each elementary school.

The school district serves over 3600 students as buses travel a varied terrain of more than 4,000 miles daily to provide students access to one of Kentucky's top 20 performing public education institutions. Despite having over 70 percent of students qualify for free and/or reduced lunch, the district regularly performs well above state average on standardized assessments. The district boasts a computer to student ratio of 1:1 capitalizing on numerous grant activities to achieve this ratio.

Applying a combination of both traditional and non-traditional learning methodologies, the school district's students are some of the most recognized and decorated in the state. District schools have been crowned on numerous occassions as Academic Kentucky State and also Academic International Champions. Every student in the Johnson County District has the opportunity to participate in co-curricular and/or extra-curricular activities. This opportunity for engagement helps

set the culture of active participation in district and community initiatives. Despite large obstacles of an impoverished area, the result of quality school programs is a willing and supportive community base.

Introduction. The Johnson County School District (JCSD) is in the process of transforming how teachers teach and how students learn. This transformation is the product of a multi-year plan to shift the learning process from a stand-and-deliver model to a student-centered, student-driven model utilizing the power of connectivity via the district's one-to-one (1:1) chromebook initiative. Upon the start of the 2017-18 school year, every student and teacher in grades 4 through 12 of the JCSD had received a chromebook computer. This executive summary is intended to document this learning transformation process and establish a guiding product available for any who wish to study this initiative of the JCSD. The capstone product, a video series, provides future students and employees both a historical perspective and implementation guide to help ensure continuity and systemic implementation of the program. The capstone product may serve as a beneficial resource for any generalizable district interested in embarking on a 1:1 initiative like that of the JCSD.

The core of the capstone is a chromebook integration video series documenting instructional strategies for integration and implementation of a 1:1 chromebook initiative in a rural school district in Eastern Kentucky. The video series serves as a mandatory inservice and a resource for future educators during the induction process ensuring focus on the initiative for systemic implementation. The

video may also serve as a resource to other school districts and educational organizations as they see fit.

Problem statement. The current model of public education in the United States is failing our students and contributing to a society where the U.S. is more removed from the future world economy (Engler, 2006). Therefore, an instructional shift is required immediately to ensure students learn because they see value, meaning and purpose in their education rather than learning because they are expected to and/or through compliance. In his 2014 capstone work, Belcher cites work by Bellanca and Brandt (2010); Darling-Hammond (1997); Jukes, Kelly and McCain (2009); and Wagner (2010) calling for a necessitated change in the instructional model from one developed in an agrarian society and designed to manage people to one designed to empower our youth as critical thinkers and problem solvers. Belcher's research is the impetus for change in his district using a 1:1 iPad instructional model as the tool of equity and empowerment (2014).

Addressing this necessary shift, Kentucky's JCSD gathered educational leaders and community experts to discern the skills and abilities necessary to compete in a business world not yet invented. Recognizing that access to knowledge and information is available to everyone at the touch of a keyboard, the group focused on application of aquired knowledge, critical thinking and problem solving skills. These were incorporated as part of a district wide strategic plan (Figure 1) in the spring of 2016.

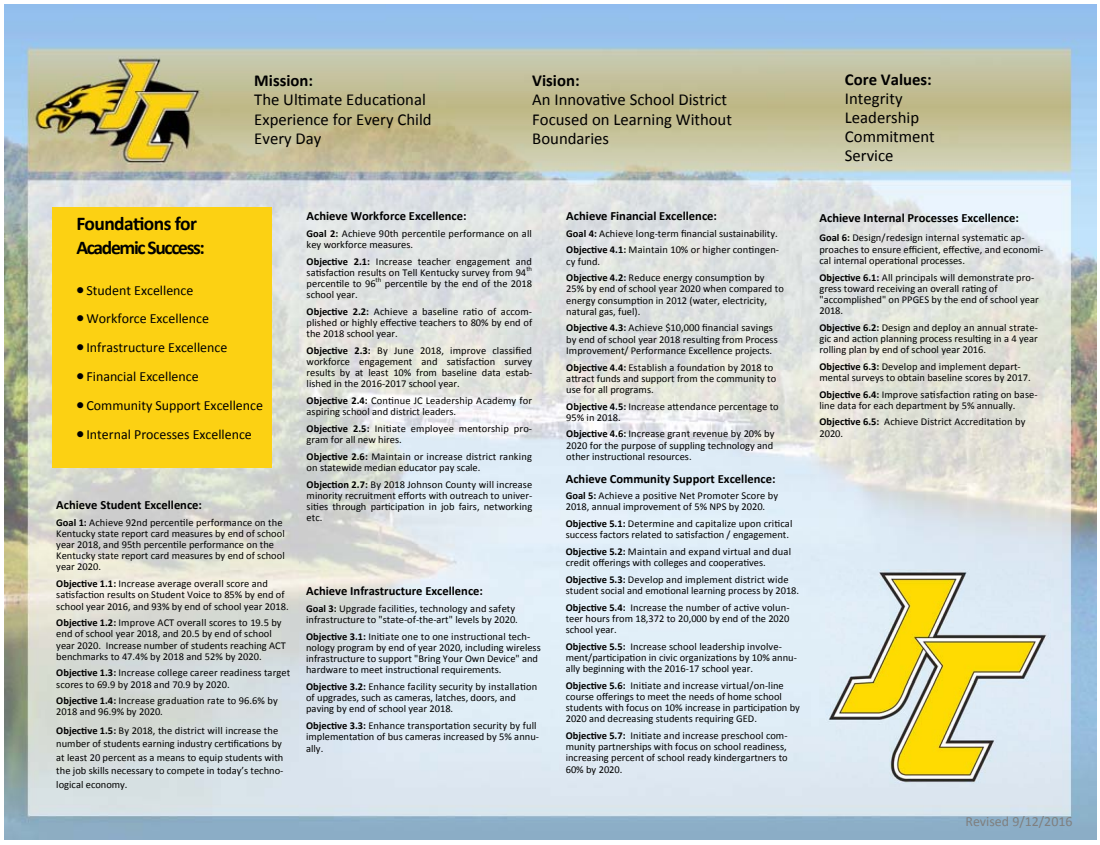

Figure 1: Johnson County School District Strategic Plan

The strategic plan served to focus all district initiatives into one cohesive and integrated plan. One goal of the plan, in conjunction with the overarching instructional goals, was to implement a 1:1 computer initiative for all students in grades 7 through 12. This would provide equity of access to knowledge and information for all students allowing them to focus their learning on application and problem solving using that access. All technology work for the year was centered on achieving that goal.

In the fall of 2016, that goal came to fruition when the Board of Education (BOE) at the request of the superintendent and with nearly unanimous support from district educators approved the purchase of 1,800 chromebooks for students and staff of the district's lone middle and high schools. Embarking on this initiative, district leadership was left with the following questions. How can the district ensure the 1:1 initiative is implemented in a systematic manner? How can the district ensure the goals of the program are being met? How can the district maintain continuity of the initiative over time? The district's solution to these overarching questions is found within this executive summary and related capstone.

Purpose. The purpose of this executive summary was to document the consequences of this strategic action. The summary shall also serve to report on the overall effectiveness of the 1:1 implementation. The capstone project helps ensure continuity of this systemic initiative, designed to adopt changing technologies and shift the instructional design of the JCSD, by helping to institutionalize the initiative for perpetuity. Finally, the executive summary and associated capstone project adds to the research and resources for other districts considering a move to a 1:1 computing device initiative.

Guiding questions. The following guiding questions helped shape the focus of reporting for the JCSD 1:1 initiative:

1) What does a successful 1:1 initiative look like?
2) What considerations are necessary prior to adoption? Is the model sustainable?

3) How will instruction been transformed?

4) What is the impact on students?

5) What is the impact on educators?

6) What is the impact on the community?

7) Is there a public relations (PR) component to the initiative? If not how can this capstone help address PR?

8) How can my capstone project help to answer these questions and increase support for the program?

Review of literature. The literature on this subject spans a time period of over 20 years. Due to the nature of the topic, the technological advances have been subject to extreme shifts during that period. Therefore, although included in the literature review for historical context, in general, the older the reference the less applicable it is to current educational initiatives.

Twenty years ago a laptop computer averaged around $1,600. Chromebook technology today provides increased capabilities at less than 1/8 of that price, making it affordable to a majority of every students. The cost of the device enabled many school districts in the United States to consider a 1:1 model.

Significant findings. The literature review provided several significant findings. One of the most inclusive, conclusive and significant analyses to date on 1:1 initiatives was published by Zheng et al. (2016). Zheng et al. conducted a meta-analysis and research synthesis encompassing 65 peer-reviewed journal articles and 35 dissertations completed between 2001 and 2015. The criteria for selection ensured

that only peer-reviewed publications of K-12, 1:1 studies, with well-defined research questions, empirical data, and clear findings were utilized in the analysis. Zheng et al. concluded significantly increased academic achievement in science, writing, math, and English (2016). He also concluded an increase in student engagement, enthusiasm, and teacher-student and home-school relationships. Evidence of shifts in instructional design with increases in student-centered and project-based learning was reflected (Zheng et al.).

While Zheng et al. (2016) documented significant positive relationships between 1:1 programs and student achievement, other researchers failed to reach a similar conclusion during their studies. Studies by Clark (1994) and Russell (1999) found only limited and mixed results in student academic achievement. Additionally, while Zheng et al. documented transformations in teaching and learning, Garthwait and Weller (2005) concluded, "having access to one-to-one computing did not automatically shift instructional styles from teacher-centered to student-centered" (p. 3).

In a dissertation by Branch (2014), student achievement and transformation of the instructional process were cited as the two leading reasons for instituting a 1:1 initiative. His work in rural West Virginia lay in a setting much like that of this capstone, and although viewed successful, it is inconclusive if the goals were ever achieved. In a comprehensive review of evidence with regards to student achievement, Rosen and Hill (2012) state, "despite high-profile efforts and significant

investments of resources, educational technology programs have revealed mixed effects" (p. 226).

Value added measures. Although some early researchers focused primarily on student achievement, later studies became much more inclusive of other measurable outcomes. Bebell and Kay (2010) identified seven outcomes of the Berkshire Wireless Learning Initiative. The outcomes included "enhanced student achievement, improved student engagement, changes in teaching strategies, curriculum delivery, and classroom management; and enhanced capabilities among students to conduct independent research, and collaborate with peers" (Bebell & Kay, p. 8-9). The work of this initiative was a clear shift from earlier researchers as the initiative began to focus on other valued measures just as important to the long-term success of the program and necessary to increase student achievement.

One focus of the Berkshire Wireless Learning Initiative (Bebell & Kay, 2010) was student engagement. Never before in the history of public education has this been more important. Students can no longer afford to approach school as a passive recipient to learning. According to Fullan (2016), by grade nine only 37% of students are enthused about their learning (p. 140). As educators, we must ask why students are unenthused and not engaged. We must implement new strategies to re-engage JCSD students in the learning process. The evidence suggests, the JCSD 1:1 Initiative is one way to increase engagement.

Difficulty in research. The extended vision of other valued measures is important as we look to support our own initiatives with productive research based

outcomes. Although student achievement may increase over time, determining the relationship of the chromebook initiative to academic performance is something difficult to achieve especially in short term isolated studies. It is for this reason that long-term longitudinal studies and or meta-analyses of specific studies provide the most accurate evidence of technological initiatives. Failure to properly study this or any similar initiative over time could result in skewed, inconclusive, or invalid results.

Ethical responsibility and critical skills. While research on achievement scores of 1:1 initiatives illustrates mixed results (Clark, 1994; Rosen & Hill, 2012; Russell, 1999), there is no doubt that our ethical responsibility to provide every student with critical skills for success requires the adoption and infusion of technology into the curriculum. Unfortunately, the 1:1 initiative does not come without any ethical concerns by students, teachers, parents, and experts. One expert on the subject quotes, "technology has more often than not been used poorly in schools, particularly in low-resource areas—at the expense of more necessary interventions (like upgrading teacher qualifications)" (Burns, 2013, p. 44). Regardless of these concerns the JCSD strived forward towards full implementation with a goal of ensuring access to every student as a basic component of our learning model.

Summary. It is clear from these studies that the success of 1:1 initiatives cannot be determined solely based on student achievement or transformation of the learning process. It is important for the success of any program to have measurable

outcomes but those outcomes must be realistic and grounded in sound educational theory and practice. Increased student achievement and shifts in instructional methodology may occur but are not guarantees of a successful1:1 initiative.

Studies by Bebell and Kay (2010), Shapely et al. (2011), and Mouza (2008) cited by Branch (2014) support the idea that 1:1 initiatives can serve to increase student engagement. The JCSD 1:1 initiative was designed to help re-engage all students in their learning. Utilizing the 1:1 initiative to combine student passions and strengths identified through the student's individual learning plan (ILP) with a transformative instructional model, students have the opportunity to become engaged, passionate life-long learners.

A review of the traditional model of the change process illustrates that the process from initiation to institutionalization may take from three to five years (Fullan, 2016). Applying this model to 1:1 initiatives, then what should be studied in the limited and early years of these initiatives? What data/results are expected during the infancy of any new 1:1 program? Rather than measuring student achievement, what other variables should be measured to reflect the change in the entire system? As educational leaders, should we not be striving to ensure increased and maximum engagement of all stakeholders, be they students, teachers, or community members? The district's 1:1 initiative, my executive summary of that initiative, and related capstone project is intended to help achieve that overarching goal.

Definitions

21st Century Model - An instructional classroom design made popular in the early 2000's consisting of a display device, connected stationary computer station, document camera, amplified audio, instructional slate and other enhancements selected by the users.

Alternative Calendar - A modified school calendar incorporating the best options to meet the values and needs of the local school district.

Apple iPad - A mobile instructional device capable of running numerous educational and learning applications.

Apple TV - A product that couples with a display providing for connectivity of other Apple devices and/or streaming of Apple content via the web.

ARI - (Appalachian Renaissance Initiative) A consortium of 17 rural school districts committed to shared resources and professional learning opportunities working to affect policy and protocol in an effort to connect learners to highly effective teachers every day.

CBL - Challenge Based Learning is a framework designed to improve learning and organizational behavior around authentic learning experiences that encourage learners to leverage the technology they use in their daily lives

Chromebook - A laptop running Google's Chrome browser that provided a 100% web-based operating environment.

CmPS - Community Based Problem Solving is a team or individual activity in which students identify real problems and implement real solutions in a community – local, state, national, or even global.

CTE - Career and Technical Education is a term applied to schools, institutions, and educational programs that specialize in the skilled trades, applied sciences, modern technologies, and career preparation.

Dataseam - A public partnership of school districts of 40 coal producing counties which provided instructional support and professional growth in member schools while providing grid computing power for cancer researchers at the University of Louisville.

Digital Holler - A term used by Congressman Hal Rogers to describe the transformation of East Kentucky's coalfields from one of labor based jobs to one of electronic web based entrepreneurism.

Document Camera - An instructional technology device that allows the user to display any document placed under the camera on any connected display, taking the place of an overhead projector.

EOY - End of Year in relation to a school typically denotes the end of the student academic calendar.

ExactPath - An adaptive diagnostic assessment and individualized learning platform to help students continually progress in the areas of math, reading, and language arts.

Flipped Classroom - An instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often

online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom.

Flipgrid - A flipped classroom approach to using video for igniting student discussion and engagement.

Google Classroom - A free web service developed by Google for schools that aimed to simplify create, distribute and grade assignments in a paperless way. ... It was introduced as a feature of G Suite for Education, formerly Google Apps for Education, on May 6, 2014, followed by its public release on August 12, 2014.

Google Drawings - A free web-based diagramming software developed by Google. It allowed users to collaborate and work together in real time to create flowcharts, organizational charts, website wireframes, mind maps, concept maps, and other types of diagrams.

ILP - The Individual Learning Plan was a requirement of Kentucky's 6th grade through 12th grade students in the 2017-18 school year. ILP's altered how students prepared themselves for their future.

Infinite Campus - A student management and reporting database adopted by Kentucky for all K – 12 schools and used for state required reporting functions.

IXL - IXL was the world's most popular subscription-based learning site for K-12. Used by over 6 million students, IXL provided unlimited practice in more than 7000 topics, covering math, language arts, science, social studies, and Spanish. Interactive questions, awards, and certificates keep kids motivated as they master skills.

Kahoot - A free game-based learning platform for all ages that made it fun to learn – any subject, in any language, on any device.

KEDC - (Kentucky Education Development District) A cooperative of 67-member school districts statewide that provided educational support services to member districts.

KETS - The Kentucky Educational Technology System (KETS) was a direct result of the Kentucky Education Reform Act of 1990. Within the work of KETS, a Master Plan was developed along with the KETS Implementation Plan that guides Kentucky's schools continuing work in instructional technology.

KVEC - (Kentucky Valley Educational Consortium) A cooperative of 22-member school districts serving over 50,000 students and 3,000 educators focused on instructional support for its members.

MDM – (Mobile Device Management) Software that provides the following functions: software distribution, policy management, inventory management, security management and service management for smartphones and media tablets.

NBCT - National Board Certified Teacher

Nearpod - An interactive classroom tool for teachers to engage students with interactive lessons.

NTI- Non-Traditional Instruction was a day of learning typically occurring outside the confines of the school. Used in Kentucky by school districts battling the impact of severe weather and the loss of instructional time.

One-to-one (1:1) - A instructional technology model providing for one instrucional learning device for each student.

PBL - Project Based Learning is a student-centered pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems.

PLC - Professional Learning Communities is a group of educators that meets regularly, shares expertise, and works collaboratively to improve teaching skills and the academic performance of students.

Shared Folders - A technology used by numerous software applications allowing users of a public web space to share and collaborate on work product in an easy and efficient yet controlled manner.

SOY - Start of Year in relation to a school typically denotes the start of the student academic calendar.

STLP - Student Technology Leadership Program was typically a group of students who served to support the overall technology program of a school or district.

Who is the capstone meant to impact?

The JCSD 1:1 project was implemented as a result of a long term vision by district leadership to transform the instructional model and increase student engagement in one Kentucky school district. Achievement of a 1:1 student to computer ratio as part of the Kentucky Educational Technology System (KETS) provided student access to a learning vehicle. The initiative was in part the result of an on-going professional growth and development system for educators.

Focusing on technology integration and encouraging continuous growth through programs and partnerships such as Dataseam's classroom cancer grid and Kentucky Valley Educational Consortium's (KVEC) Appalachian Renaissance Initiative (ARI), JCSD educators were positioned to make a transformational shift in the instructional model. This executive summary and related capstone document the shifting instructional model, related student engagement, and transformation of the overall learning culture for the students, staff, and stakeholders of the larger school community. The capstone is meant to communicate the possibilities of instructional transformation as a result of the 1:1 initiative to reluctant staff, unaware students, and the larger community.

Context of the capstone.

The 1:1 Plan. The JCSD 1:1 Initiative was the fruit born from years of institutional planning, prioritization, and implementation of multiple initiatives combined to produce this transformational learning model. These efforts included the adoption of state technology standards and local technology plans moving all schools

toward a goal of 1:1 implementation. The plan included replacement and upgrade of network infrastructure along with the installation of electronics capable of providing a robust and saturated wireless network. It also included teacher and staff participation in numerous professional growth and learning opportunities along with the acquisition of the associated technologies, in this case chromebook computers. Finally, the plan presumed that student technology opportunities and development of 21st century technology skills would occur as the district continues an instructional shift in teaching and learning.

The beginnings. Educational growth opportunities such as the Dataseam Initiative and KVEC's ARI implementation dramatically increased the instructional technology capacity of JCSD's certified staff. Both programs infused technology throughout the district and placed that technology with early adopters of instructional technology. The growth in capacity on a district-wide level served to inspire remaining staff. Upon witnessing the learning opportunities in their neighboring teacher's classroom, remaining teachers desired to possess and share the same skillset and capabilities with their students.

Educator growth and development. Dataseam's program was designed to build capacity of educators within participating districts in the areas of personal productivity, web design and communications, podcasting, and video production for learning while also conducting cancer research in the background processes of the workstations. KVEC's program was also designed to build educator capacity, however it differed from the Dataseam model in that the program focused on sharing

that capacity during regional peer meetings and at bi-annual summits for all participants.

The Dataseam and KVEC ARI programs transfused large amounts of instructional technology devices while providing professional level instructional technology training available to every teacher in participating districts. As a result of these programs, the JCSD found itself in a position to leverage increased educator capacity in application of instructional technology to transform the learning model. This provided a direct and instant opportunity to all students in grades 4 thru 12 to aquire and apply 21st century technology and critical thinking skills to and for their future learning.

Instructional shift. Shifting instructional paradigms as a result of these programs with particular focus on student-centered project based learning (PBL), challenge based learning (CBL), and community based learning or community based problem solving (CmPS), the JCSD recognized the necessity to provide every student equal and equitable access to the learning model regardless of socio-economic or locale barriers. The 1:1 chromebook initiative in Johnson County offered the vehicle to achieve this teaching and learning transformation with the potential to have a direct impact on student success. The impact on students, teachers and the community could be transformative to the county and support the overarching regional goals of project SOAR and Congressman Rogers' connecting the "Information SuperHighway" to "Digital Hollar".

The new workforce. Critical for a regional impact is the growth and development of a workforce capable of meeting the challenges of the new economy. Student entrepreneurs educated with 21st century technology skills via PBL, CBL and CmPS will be poised to strike in this new economy. The development of skilled workers for this economy could have the effect of transforming the area and region. Essential to this new workforce was the mastery of 21st century technology skills and their application to community problem solving. One objective of the JCSD 1:1 Initiative was to provide this mastery. This capstone helps to document that learning process and resulting workforce growth and development.

How was the capstone project implemented?

The JCSD utilized an alternative school calendar, a calendar designed to increase flexibility in instruction combined with regular breaks for students and staff to recharge without regression in learning. Under the alternative calendar, school began in early August and ended in mid May. The calendar contained one 1/2 professional learning day for educators each quarter. The calendar included week long breaks between quarters in both the fall and spring. The traditional two-week holiday season break was also maintained in the middle of the school year.

During the fall of 2016, the district deployed chromebook devices to all teachers and provided intensive training based on the self-identified user level of the educator. Teachers were asked to return from break prepared to integrate the instructional technology devices into the regular curriculum. Students received their

devices shortly after the same break. Instructional implementation followed shortly thereafter.

In a period of a few weeks the district purchased, inventoried, asset tagged, set up or programmed, enrolled into mobile device management (MDM), and deployed 1,800 chromebooks. Each asset tag and unique device ID was recorded on custom tabs in the state student database system, Infinite Campus (IC), for the purpose of individual student tracking. Students signed for receipt of their device, and selected a optional insurance plan required for home use and maintenance of the program on the day they received their chromebook. From this point forward, students were individually responsible for their instructional device. Just as previous classes were required pencil, paper, and other resources, all students in grades 7 through 12 were required a charged chromebook for their daily instruction.

In an effort to ensure a continually successful implementation of the program, the historical data has been provided from the original implementation and all activity moving forward during the fall of the 2017-18 school year was documented for inclusion in the capstone video series. The final production of the video series was completed April 1, 2018. The series was highlighted upon its completion and scheduled for public release in early May of 2018.

Why was this capstone and related strategies selected?

The capstone and related strategies were selected out of necessity. The responsibility of an administrator is to ensure that every student, regardless of

circumstance, receives a free, appropriate, equitable, efficient, effective, and engaging education led by a passionate, demanding, and yet caring classroom leader.

Today's students are more than just digital natives. They are a matrix of socially interconnected beings operating in both the reality of today's educational settings but also in the augmented reality of the world in which they socially interact. Their smart device is an appendage to their body perhaps more valuable to many students than an ear or an eye. It is the input device to the student as the mouse or keyboard is to the computer.

The dichotomy between the educational push of the past, through stand and deliver methodologies, and the pull of the present and future, through instant and immediate access to any desired learning, has created opportunity in the world of education. In this new educational world of student entrepreneurism, those students who recognize their potential and embrace CBL are achieving well beyond those yet to make the same recognition. It is the responsibility of educators to ensure all students recognize their potential and follow their passion.

Educational conformity in this world can no longer exist. As in all other worldly aspects not only does shift happen, in this world shift must happen! It has been suggested by many that education is the great equalizer. But is it really? It could be argued that receiving an education had the potential to help equalize opportunities in life, but under the historical system of U.S. public education there remained many barriers to those of less economic resources, less parental support, and less cognitive ability.

In this new world of learning, any student with passion, desire, ingenuity and belief in one's self, combined with a internet connected device, has the opportunity to achieve global success. Although the computer is not capable of changing the student's life by itself, it is a required educational tool enabling the user to be as successful as they choose. It has been said many times in education lore that a computer will not replace a teacher but a teacher who knows how to properly use a computer for teaching will replace one who does not (unknown).

Taking that a step further, an educator who knows how to effectively use computers and other resources to actively and successfully engage students in PBL, CBL, or CmPs learning activities will replace those who do not, simply by the law of attraction. These type of educators will be idolized by the students in the school and will be the most requested educators during scheduling. Therefore educators must shift their paradigms, transition their teaching methods, and build relationships for success with all of their students. In an effort to achieve that overarching goal, this capstone project and related strategies were imperative to the JCSD and larger community.

This capstone project including video series and executive summary presents fairly the JCSD's One-to-One Chromebook Initiative. The JCSD's initiative is a true and valid attempt at incorporating an innovative technology into the learning process in the Johnson County School System. The initiative included grades 7 – 12 during the initial year and was expanded to include grades 4 -12 in the second year. The initiative by definition alone addressed all the attributes defined by E.M. Rogers

(2003) in his work *Diffusion of Innovations*. Viewed as a purely technical device, the chromebook easily lent itself to the grasp of tentacles reaching from the sea of darkness otherwise known as the implementation dip. In an effort to combat this potential for failure and promote success of the initiative, this capstone will address Rogers' innovation attributes.

Rogers' first innovation attribute, Relative Advantage, is focused around the question of whether the new innovation is somehow better than what is currently used and may be replaced. The chromebook is a different type of technology in contrast to those implemented in the past. Although the chromebook may be used to replace many educational resources, it was not the primary objective of the school district's initiative. However, this author can identify several resources such as the encyclopedia, dictionary, and other reference books, which the chromebook may replace. Other identified resources include the class textbook, video projectors and other multimedia courses.

The chromebook can serve the purpose of providing live collaboration and distance learning on initiatives shared through cloud based storage. The device can provide students, the opportunity to take a virtual fieldtrip to their favorite destination or even into the workspace of their future careers. Although not completely replaced, one might say that the chromebook may greatly reduce the need for copy machines and decrease the amount of financial resources allocated for such. So this author must ask, is the technology better than what we have now? I intend to make the case in this capstone project.

Rogers' second attribute of innovation, Compatibility, is concerned with conflicts to values, practices, and needs of the adopter or organization doing the adopting. This is a much more difficult task to address. As noted in the review of literature, there have been several studies on one-to-one implementations but there are mixed findings with regard to whether the innovation improves assessment results. Compatibility is likely the key attribute to the success or failure of this initiative. Educators in most schools and districts are as varied as the students for which they serve. Their habits, passions, and desires are acquired through rich experiences over time.

In the JCSD, 4th – 12th grade educators vary in experience from 0 – 39 years of service. More than half of the population is above the median number of service years. This practioner has found that in many cases, educators with more experience are least likely to embrace new ideas and innovative methods of learning. As a result the diffusion of compatibility for implementation of chromebooks without any prior introduction of computer-enhanced learning would likely be low. However, Johnson County has had the goal of one-to-one computer-enhanced learning for over ten years and has been engaged in a process to achieve this goal for the majority of that time. The steps taken during that time helped the district overcome Roger's second attribute, Compatibility.

Rogers' third attribute of innovation, Complexity, regarding the difficulty of accurately understanding the innovation will have little impact on this initiative. Students are digital natives and as such they take to new technologies like a duck

takes to water. Johnson County has been a 21st century learning district since 2008 when every classroom became equipped with 21st century instructional technology. All JCSD educators have been required to use computer-based instruction to enhance the learning process for several years. Although the chromebook is a different device than what teachers and students were acquainted, the district has always been device agnostic and open to using any learning device or platform desired for learning by the teacher or learner.

Trialability, Rogers' fourth attribute of innovation, which centers around the opportunity of adopters to test drive the innovation before adopting it, just like one might test drive a car, was also quickly accomplished in the school district. The district had been part of a multi-million dollar grant called Appalachian Renaissance Initiative (ARI) through the Kentucky Valley Educational Cooperative (KVEC). As a participant in the grant, district educators had the opportunity for professional development with chromebook technology as they competed for classroom sets eventually dispersed throughout the district. The classroom sets ended up in the hands of educators who became champions of technology integration. Ellsworth, cites Rogers who refers to these champions as "master practitioners" (p. 52) and suggests they are essential to change.

JCSD's Chromebook Initiative was an easy sell to stakeholders because trialability and Rogers' final attribute of innovation, Observability, were built into the work already occurring in the district. Observability, defined just as it sounds, is the ability for others to see the innovation in use within the setting for which it is

intended to be used. Building on the work from ARI over multiple years, the JCSD was able to expand the number of educators desiring chrome books as a required instructional device for the classroom. Neighboring educators witnessed and embraced the opportunities presented by the chromebook innovation found in the ARI enhanced classrooms next door or across the hall in every school within the district.

The JCSD One-to-One Chromebook Initiative, which has been officially underway since November of 2016, will likely face an implementation dip. Ash and D'Auria state the implementation dip is, "when faculty members make the transition from old practices they know well to new practices they have not yet mastered" (p. 168). In the case of the Johnson County Initiative, the introduction of this new technology was not the concern for the dip because the practices are not really old and/or un-mastered. The concern for the dip was with the instructional processes and the fear of veteran educators to take the leap in transforming their classrooms from the way they teach to the way students learn.

In preparation for the initiative, the JCSD placed much emphasis on professional growth activities leading up to the initiative, yet several questions still remained. Is the faculty fully capable of transforming the teaching and learning process to make full use of the chromebooks as a instrumental instructional device for increasing hands on learning and engagement both within and outside the classroom? Are the district and school level leadership teams prepared to lead the transformation,

model the learning, and monitor the implementation for proper and effective use and engagement by students and staff?

To avoid an implementation dip, it was incumbent on the district to continually lead the initiative through proper communications. The district recognized the necessity to continue providing effective scaffolding in professional learning, support by champion master practitioners, and most importantly continue acknowledgment and praise of educators for their efforts. Any implementation dip will likely require quick and responsive communication of the district vision with particular support for the initiative in relation to the overall district vision encompassing the future of individual lifelong learning by our customers, the students. To avoid this potential failure of the initiative and eliminate Rogers' last diffusion attribute, Observability, this capstone video series was created. The video series will provide scaffolded professional learning, support by champion master educators, and praise of those same educators for their efforts leading the initiative.

When was the capstone implemented?

The capstone videos were produced from previously collected and district owned footage of the 1:1 initiative from the 2016-17 and 2017-18 school years. The author was able to use the available video footage to cut, clip, paste, and produce short videos demonstrating effective instructional lessons for the capstone project. District employees appearing in the videos signed a release (Appendix B) for both use in the capstone and by the district. Student release is governed by the district's policy on PPRA (Appendix A) and the author confirmed that no student viewed in the video

series was prohibited at the time of original filming or production of the series. Public release of the series was scheduled for early May 2018 upon successful defense of the capstone. Implementation of the capstone project for the purpose of supporting continuity and systemic implementation of the initiative was scheduled for inclusion in summer professional development activities in June and July of 2018 for teachers and August of 2018 for students and community.

Capstone Project

The capstone project, JCSD's 1:1 Chromebook Initiative, consists of a series of eight videos. The video series is a visual representation of model instructional lessons by expert teachers in the field of educational technology integration. These champions of instructional technology demonstrate effective implementation of 1:1 learning across the curriculum and the videos document model educator led instruction, student engagement, and student expectations in this new digital world of education.

Original plans for the series included resource videos for consideration prior to, during, and after implementation of a 1:1 chromebook implementation. However, after extensive literature review on the subject, this author determined capturing the essence of instructional impact and student engagement would provide more beneficial to the JCSD community, to any district interested in pursuing a similar initiative, and to the larger body of knowledge as a whole. Each video contains an introduction of the instructor and their lesson with highlights of particular points of viewer interest. The videos included are as follows:

- JCSD 1:1 - Capstone Video 1 - Mrs. Frances Hackney's Sixth Grade ELA Classroom
- JCSD 1:1 Capstone Video 2 – Mrs. Missy Davis' Seventh Grade Math Classroom
- JCSD 1:1 Capstone Video 3 – Mrs. Jessica Mullins' Fifth Grade Math Classroom
- JCSD 1:1 Capstone Video 4 – Mrs. Melanie Ramey's Fourth Grade Math Classroom
- JCSD 1:1 Capstone Video 5 – Mrs. Casey Salyer's Fifth Grade Math/Science Classroom
- JCSD 1:1 Capstone Video 6 – Mrs. Casey Salyer Reflections on Learning
- JCSD 1:1 Capstone Video 7 – JCSD Technology Leadership Summit – Part 1
- JCSD 1:1 Capstone Video 8 – JCSD Technology Leadership Summit – Part 2

JCSD 1:1 - Capstone Video 1 (10:52)

Objectives. To capture the instructional use of Google Drive. To demonstrate effective student application to lesson objectives. To display flexibility of the model for advanced students.

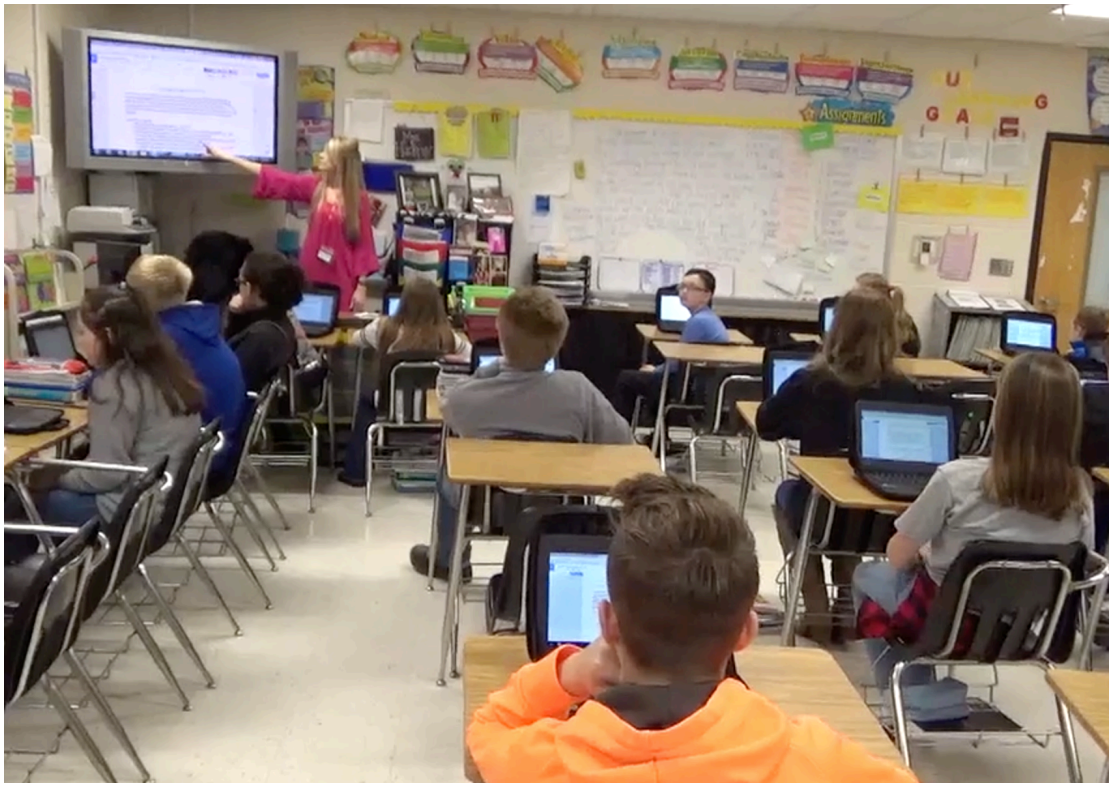

Figure 2: Mrs. Hackney using Google Drive and Shared Folders

Student look fors. Students helping other students. Student creativity in assessment design.

Teacher look fors. Accessibility, flexibility, and creative support of student designed assessment.

Description. JCSD Capstone Video 1 documented the efforts of a sixth grade ELA instructor from Porter Elementary School. Mrs. Frances Hackney was one of the leaders in her school implementing full integration of technology and application of a 1:1 learning model that capitalized on the power of the Google Chrome platform to streamline learning. All students in Mrs. Hackney's class utilized shared folders both to access and submit their assignments and associated work product.

In this particular lesson, Mrs. Hackney flipped the assignment requiring students to create an assessment over the content they had previously covered. The assignment rubric was discussed by Mrs. Hackney and also posted on the Google shared drive for all students to review as needed. Although provided with successful examples, students were given flexibility to select any prior application used in class to create their assessment or one of their choice with approval from the instructor.

Creativity flourished throughout the lesson as students chose their own methods and processes to achieve the assignment. Classroom flexibility and student choice can lead to loss of instructional time, yet Mrs. Hackney overcame this by both discussing time management during lesson introduction and sharing a class timer on the class display. Students who completed early participated in enrichment activities distributed via the google classroom. It is important to note that in this video, not only does teacher to student learning occur but also student to student as well as student to teacher. Utilizing a 1:1 learning model students can easily become the teacher (Figure 3).

Figure 3: Mrs. Hackney – Student teaching students and student teaching teacher.

JCSD 1:1 Capstone Video 2 (11:50)

Objectives. To capture the instructional use of Nearpod, Google Classroom, and Kahoot applications in a non-traditional setting.

Student look fors. Student interaction, participation, engagement, and positive behavior in a non-traditional setting.

Teacher look fors. Instructional management, flipped instruction, and teacher/student interaction.

Description. JCSD Capstone Video 2 focused on the classroom of Mrs. Missy Davis, a seventh grade Mathematics instructor at Johnson County Middle School. At the time of this recording, Mrs. Davis had been utilizing chromebooks in her classroom for nearly four years. She was the recipient of an ARI grant she wrote

in the first year of the program for the 2014-15 school year. However, it was not until the JCSD 1:1 initiative that she could make full use of their functionality.

Previously, Mrs. Davis' chromebooks were maintained in her classroom and transferred from class to class as her students rotated through their schedule. As a result of the required transitions, instructional time was lost at the beginning and end of each class period. This was a lesson learned regarding the shared laptop cart model previously utilized by the district and one of the constraints that supported JCSD's adoption of the 1:1 chromebook initiative.

Mrs. Davis utilized the flipped classroom model. Each new introductory lesson was provided via video presentation posted to the Google Classroom for the individual class. Students were assigned to view a previously recorded video prior to the first class period for which the lesson was associated. Mrs. Davis noted that the video provided flexibility for her advanced students and greatly assisted slower students who may choose to pause, rewind, and/or fast forward the lesson to review sections with which they may having difficulty.

The classroom was configured in a non-traditional format with atypical seating choices ranging from kitchen tables, bar tables, barstools, and school bus seats. The alternative seating helped to enable creativity as students embraced the flexibility of the instructional model (Figure 4).

Figure 4: Mrs. Davis – Non-Traditional setting

In the video, Mrs. Davis led demonstrations of the learning target using a combination of teacher provided examples coupled with student practice using a application called Nearpod. Nearpod allows the facilitator to lead an instructional lesson through controlled flow of the lesson on the individual instructional devices of the students. The facilitator has the ability to share and unshare her screen with the participants. All students are participants with their own unique identifier allowing the facilitator to track progress of the indivudual students as they proceed through the drill and practice or formative assessment. Assessment results can be immediately shared with students so they can take ownership of their learning by reviewing areas of weakness for intervention with drill and practice.

One-hundred percent student engagement is observed in this video as students participated in a learning review challenge game of the lesson's learning targets using the online application Kahoot. Fun, exciting, and engaging are but just a few terms that could be used to describe the activities used to introduce, learn, practice, and review lesson objectives.

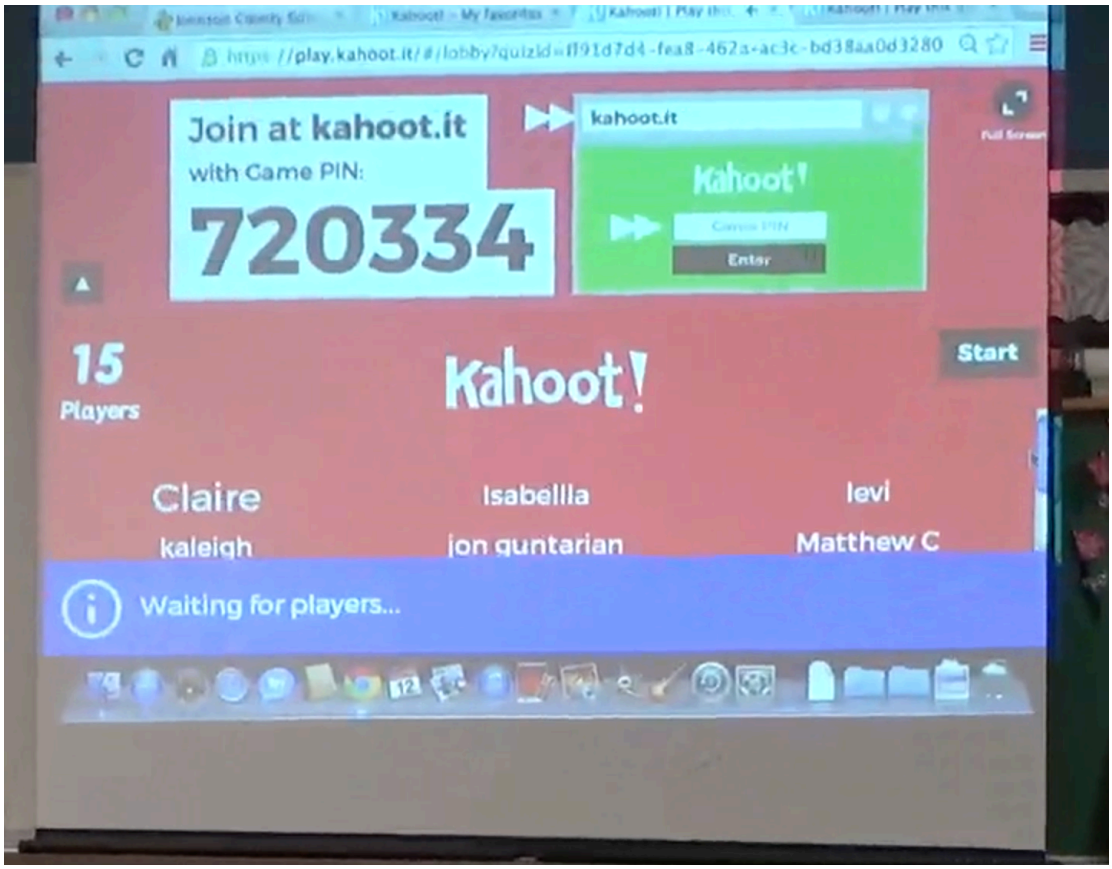

Figure 5: Mrs. Davis – Kahoot - Gaming for Learning

Transition to the next lesson began in the closing minutes of the class with the assignment of notes on Google Classroom. This helped to lay the foundation of the next lesson and develop an anticipatory set for the upcoming activities during the next

student instructional time. It was noted by Mrs. Davis that learning objectives will continue as scheduled regardless of the type of school day, regular, modified, or Non-Traditional Instruction(NTI) in the event of inclement weather.

JCSD 1:1 Capstone Video 3 (12:50)

Objectives. To capture the instructional management style used in a fifth grade mathematics class. Applications used include Nearpod, Google Classroom, IXL, and Apple iPad coupled with Apple TV.

Student look fors. Demonstration of understanding and comprehension. Self directed instruction for those progressing beyond today's lesson.

Teacher look fors. Mobility throughout the classroom. Organized instructional management in both large and small group settings. Immediate formative feedback allowing small group targeted intervention.

Description. JCSD Capstone Video 3 involved Mrs. Jessica Mullins' fifth grade classroom at Flat Gap Elementary. In the lesson observed, Mrs. Mullins instructed her students in a mathematics learning target over the order of operations. Mrs. Mullins used Nearpod to present the lesson to her students. The lesson was teacher led with integrated opportunity for students to respond to formative assessment questions throughout. Flow of instruction was controlled via the Nearpod application creating an environment ensuring all students are progressing according to expectations. Able to view the results of individual students as they respond, Mrs. Mullins had a much more immediate grasp of student understanding (Figure 6). Her formative questions included quick response, multiple choice, selected order, and

open response items. Response opportunities were limitless as students answered formative assessment questions to demonstrate understanding and comprehension.

Figure 6: Mrs. Mullins – Demonstrates with Nearpod

In the second half of the video, Mrs. Mullins demonstrated the flexibility of the learning model as she provided extra intervention with a group of students at her learning table, while others continued work at their individual pace. The activities shared on Google Classroom for the entire class included activities for those advanced and progressing students using IXL, as well as drill and practice and review for those needing more reinforcement of learning.

Mrs. Mullins has been a leader of implementation in instructional technology for several years and has written individual grants for the benefit of her students and her school. In the video, she noted the mobility difference of her instructional model

using an Apple Ipad coupled with Apple TV hooked to her classroom display versus the 21st Century Model introduced by the district in the 2006-07 school year (Figure 7). The 21st Century Model required control of her classroom display from a fixed cart in the corner of the room which limited her ability to easily move about the room and successfully meet the needs of her students.

Figure 7: Mrs. Mullins – Demonstrates untethered instruction

JCSD 1:1 Capstone Video 4 (16:11)

Objectives. To document traditional learning methods coupled with advanced application of instructional technology.

Student look fors. Self-pacing, student sharing and display of work.

Teacher look fors. Classroom management. Positive behavior system CHAMPS. Targeted interventions.

Description. JCSD Capstone Video 4 was captured in the classroom of Mrs. Melanie Ramey, a fourth grade mathematics instructor at Highland Elementary. The video is different from others in that it was taken during a formal observation of Mrs. Ramey by her principal and included some post lesson discussion between Mrs. Ramey and the principal. This video provides an excellent example of traditional learning methods combined with the advantages of 1:1 computer integration.

The instructional model applied by Mrs. Ramey was heavily reliant on JCSD's 1:1 initiative. Not unlike other teachers using grouping, her design divided the class into learning groups for smaller and more closely related instruction. However, the integration of the chromebook allowed her to follow the progress of students in both groups while working with other students.

The video displayed her effective use of JCSD's traditional instructional tools such as the document camera and display but heavily relied on chromebook applications to help students achieve their individual and group learning targets. Leveraging the power of the chromebook applications and Google Classroom, Mrs. Ramey's model effectively lowered the student to teacher ratio for portions of her class. As a result, she could more effectively target specific interventions and meet the needs of all her students.

Figure 8: Mrs. Ramey – Multi-group setting

Figure 9: Mrs. Ramey – Small group intervention while managing others via Google

In the closing segment, Mrs. Ramey and her principal discussed the use of the chromebook and associated applications to provide effective instruction. The JCSD 1:1 initiative allowed her to electronically monitor class student progress while working with individual and providing specific targeted intervention to students as needed.

JCSD 1:1 Capstone Video 5 (13:21)

Objectives. Capture and successfully illustrate a cross-curricular lesson effectively using instructional technology.

Student look fors. Group participation and cooperation. Data interpretation and analysis. Video report of findings. Student engagement and excitement.

Teacher look fors. Instructional management and flexibility. Effective use of instructional technology. Mobility and accessibility to creative divergent learners.

Description. JCSD Capstone Video 5 was captured in the fifth grade classroom of Mrs. Casey Salyer. Mrs. Salyer is a National Board Certified Teacher and a regional superstar in application of instructional technology. It is important to note the lesson was part of a formal observation but is also indicative of the type of learning one would see any day in her classroom. The lesson effectively utilized a cross-curricular project based learning approach to teach principals of science, mathematics, english language arts, and drama.

The foundation of the assignment was centered on the non-indigenuous invasion of the Bermese Python in the Florida Everglades. Students have studied the environmental and ecological effects of this invasion. As student scientists worked in groups of two, they were charged with tracking their individual python. Given a range of coordinates, students were to utilize Google Drawing to record the coordinates on a digitized grid. Student groups analyzed and discussed their findings within their team. Finally, they produced a newscast using Flipgrid to report their findings and the effects of their python on the environment.

Figure 10: Mrs. Salyer – Cross-curricular activities

Figure 11: Mrs. Salyers' students recording their reports on Flipgrid

This was an engaging and dynamic lesson that helped students think critically and apply their findings in a manner that could easily be shared with their colleagues. In closing moments of the video, Mrs. Salyer and her principal briefly review the lesson as part of a post observation discussion citing the excitement, participation, and engagement by her students.

JCSD 1:1 Capstone Video 6 (11:36)

Objectives. To capture the view of one effective elementary educator regarding the instructional transformation of her lessons with the introduction of the 1:1 learning model. To document not only how JCSD's 1:1 initiative has transformed teaching but more importantly how it has transformed student learning.

Figure 12: Mrs. Salyer – Demonstrating the mobility in an untethered classroom

Description. JCSD Capstone Video 6 included a discussion between Mrs. Casey Salyer, fourth grade teacher at W.R. Castle Elementary School and her principal, Steve Young . Like Mrs. Davis from JCSD's 1:1 Capstone Video 2, Mrs. Salyer has been utilizing chromebook technology with her students for nearly four years. She was one of the first teachers in the JCSD to receive chromebooks via a grant she wrote through the Appalachian Renaissance Initiative at the Kentucky Valley Educational Consortium.

In the video Mrs. Salyer speaks on the effects of chromebook implementation, student application and document management. Leveraging the access to data

derived from formative assessments through Google Classroom, Mrs. Salyer highlighted the time saving attributes of the technology, but more importantly praised the instructional shift for the power to transform learning inherent to the application of the technology.

Using Mrs. Salyer's instructional model, students are deeply engaged in their learning through pre-assessments, self-paced instructional activities, recording of their performance on an assessment guide, self-reflection of the learning targets and finally targeted intervention or enrichment as needed. Students became a more active participant in their education as they embraced the ownership for their learning.

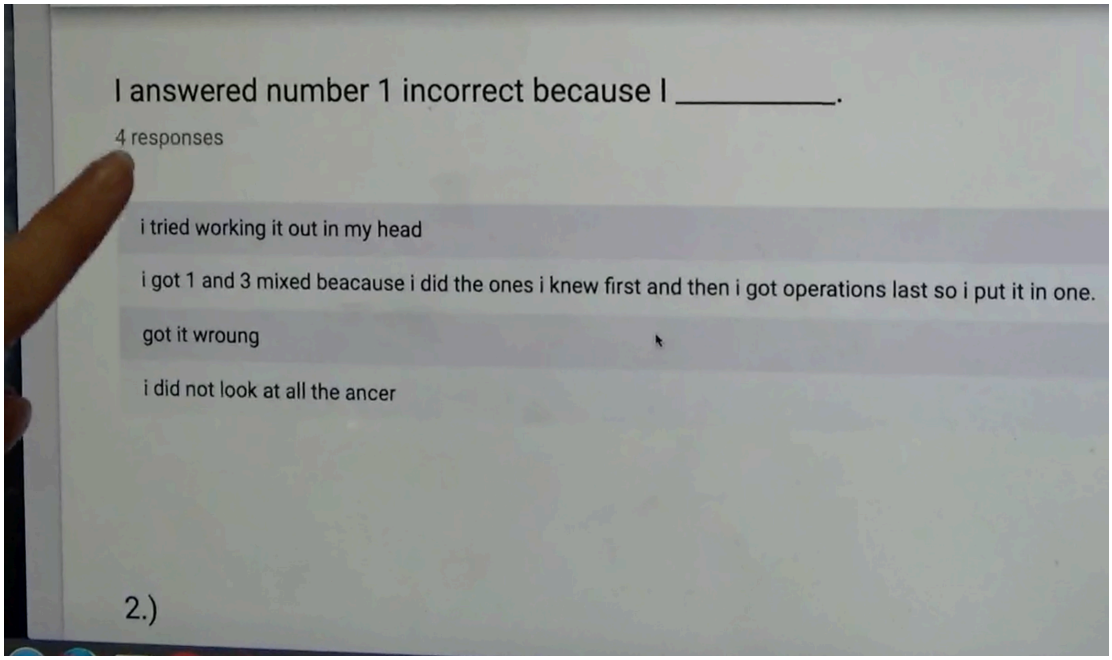

Figure 13: Mrs. Salyer – Displays student use of assessment guides

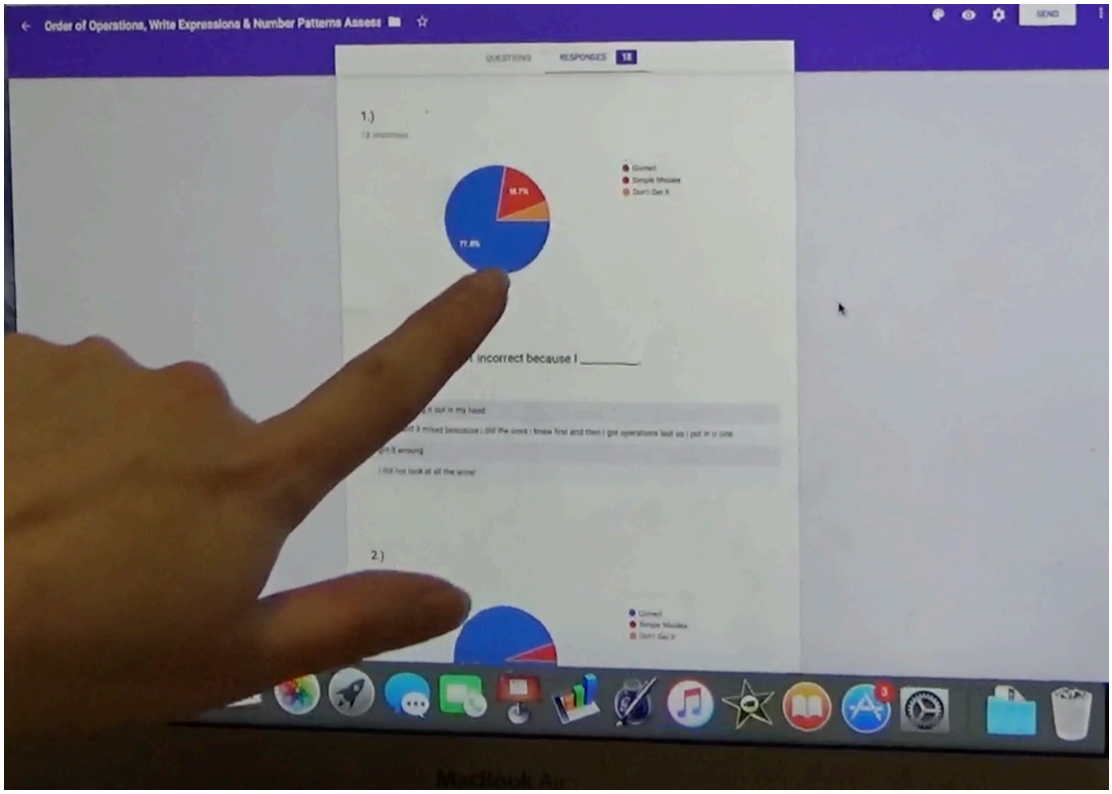

Figure 14: Mrs. Salyer demontstrates Google's reports

Mrs. Salyer notes that the power of the electronic data helps her to easily sort and record results for student progress in Infinite Campus, but more importantly enables her to immediately see the comprehension and performance of individual students, small groups, her class, or the grade as a whole. Utilizing the chromebooks has transformed the way she teaches and the way students learn. Absent and/or homebound students are able to keep up with her lessons, reducing regression and lessening remediation time when they return.

JCSD 1:1 Capstone Videos 7 & 8 (Approx. 18 minutes each)

Objectives. To capture the the views, ideas, and suggestions of district and school technology leaders througout the district on the implementation and future of the JCSD's 1:1 chromebook initiative.

Figure 15: JCSD Technology Leadership Summit.

Description. JCSD Capstone Videos 7 & 8 are roundtable discussions led by JCSD Superintendent Thom Cochran involving district educators recognized as early adopters for effectively utilizing instructional technology and in particular the JCSD's 1:1 chromebook initiative. This panel of JCSD instructional technology superstars includes teachers of all grade levels and content areas. The purpose of the summit was to discuss effective and ineffective use of the 1:1 initiative while reaching a solution for growing the effective aplication of the initiative across the larger educational body. It is clear that every school has educators who are championing the

initiative but the district must now focus on how to expand that effective ainstructional model to every teacher and every student.

Lessons Learned

Robust wireless networks were required througout every space of every building of every school in the district. The network had a connected backbone with redundant paths to the districts main point of distribution. A bandwidth of 100Mb per student was the objective achieved before wide scale deployment of devices. As more and more individuals depended on connectivity for all their individual learning needs, down time during instructional hours was identified as something that should be avoided at all costs. Any loss of connectivity resulted in an overload of outreach to help desk personnel.

Deployment and management was one of the most critical elements of implementation. The JCSD model included the purchase of new machines at seventh and tenth grades each year and operating on a three year replacement cycle. All students in grades seven through twelve were assigned their own individual chromebook for use both at school and at home for the duration of the instructional calendar. All students signed for their devices and agreed to a warranty contract for incidental damage. Device ID was tracked on paper documentation and recorded in the Infinite Campus suite under a custom tab for each individual student. Instructors were eager to use the devices at the start of year (SOY) and required their functionality during testing at the end of year (EOY). Because of its cumbersome and

time consuming process, large scale distribution and collection was identified as a process to avoid in future years.

Future process modifications include bundling units by homeroom, supplied with a lockable storage container. Individual instructors shall be responsible for both disseminating and collecting all devices at the start and close of the year as a part of annual SOY and EOY processes. A report of damage or loss of function for each device is due as part of EOY procedures. Units remain sealed and secured in the instructors classroom throughout the summer where student summer work technicians will service devices individually.

Sealed storage is a necessary component of device management. It has been discovered in some districts that certain bugs prefer the warmth of the devices and since these devices are travelling with students to and from school on a daily basis, it is easy to pick up hitchhiking insects. Some insects are more prone to reproduction and can become a large problem. By sealing individual devices in ziplock bags at EOY any unwanted pests are contained to the offending device. This helps all students and prevents further distribution to other households.

Warranty is a necessary component for any 1:1 program. Even though all devices are provided with a padded safety storage case, there is a chance a school or district could experience a large number of repairs. In the first year of JCSD's implementation, which was only a partial year, the district experienced nearly a seven percent failure rate. The failure rate consisted of both incidental damage and factory failure. Due to a learned defect in the keyboards of some devices, factory failure

constituted about three percent of the overall failures while incidental damage made up the other four percent. Expectations moving forward is that failures will total less than five percent combined. Utilizing a self-maintainer warranty model the district is able to complete repairs for all devices at an affordable price and return them to students in an efficient manner. Loaners are available during times when devices are being serviced.

School Technology Leadership Programs (STLP) can help increase instructional up time and lower the burden on teachers as well as district resources. It is reported by the JCSD technology support staff that schools with highly engaged and effective programs require fewer support calls as they tend to solve any problems they can at the school level. These students often become potential candidates for summer work and internships. Further development of STLP programs at certain schools will be instrumental in expanding and supporting a 1:1 model that extends into primary grades.

Equity and access to instructional learning devices helped to transform the instructional model. One advantage of this access was the ability to easily and efficiently complete progress monitoring providing students, teachers, and parents real time data on student growth. The district uses a product called ExactPath, a cloud based core-content aligned student assessment tool to establish baselines and measure growth throughout the year.

Thanks to the JCSD 1:1 initiative, students in grades 4 through 12 each have their own instructional learning device. This provides the ability for teachers to

measure the progress of all students in language arts, mathematics, and reading in but a few days. Although no correlation has been established to the application of the 1:1 initiative, clearly the initiative supports the ability of the district to effectively measure student growth. During the 2017-18 school year the district as a whole experienced a positive and significant growth from the baseline established at the beginning of the year to the mid year measurement (Figure 16, 17, & 18).

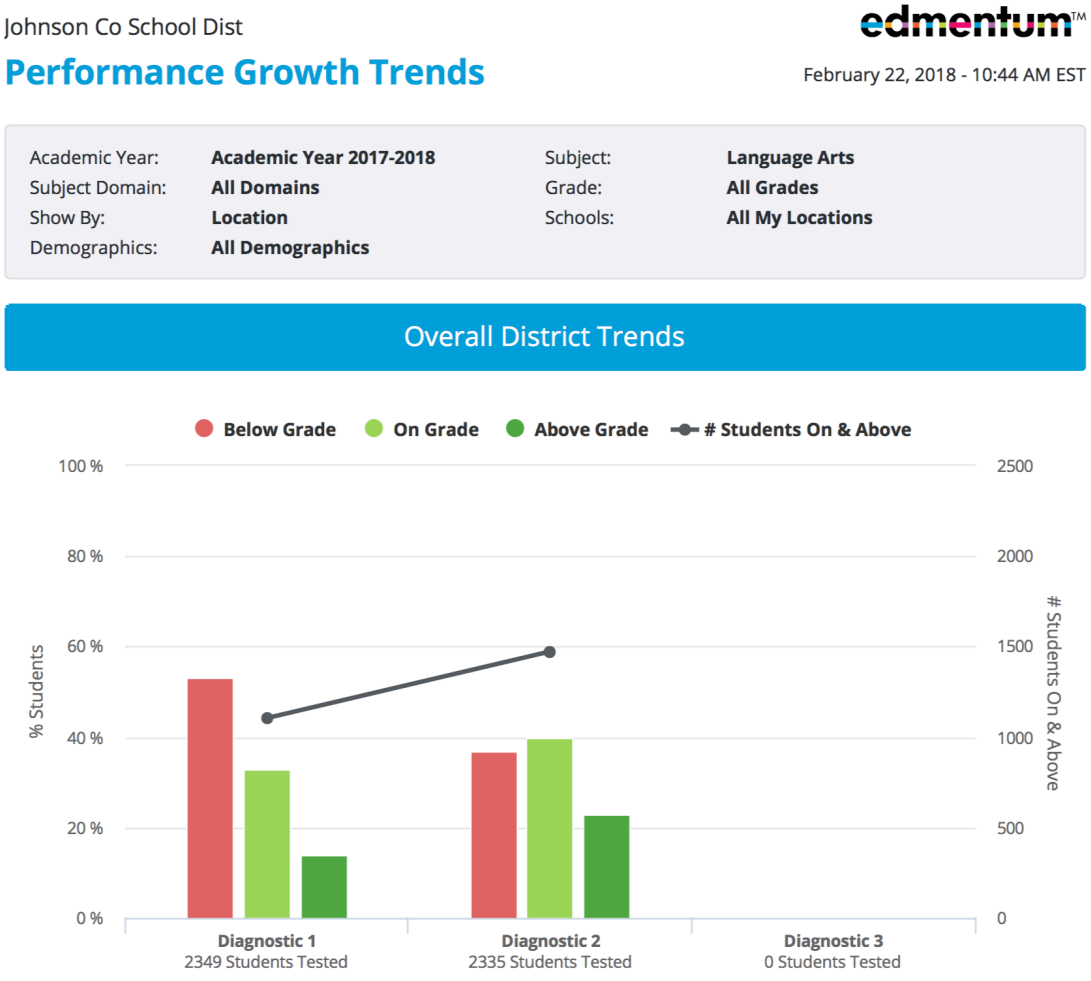

Figure 16: JCSD Language Arts Growth from 8/17 – 12/17

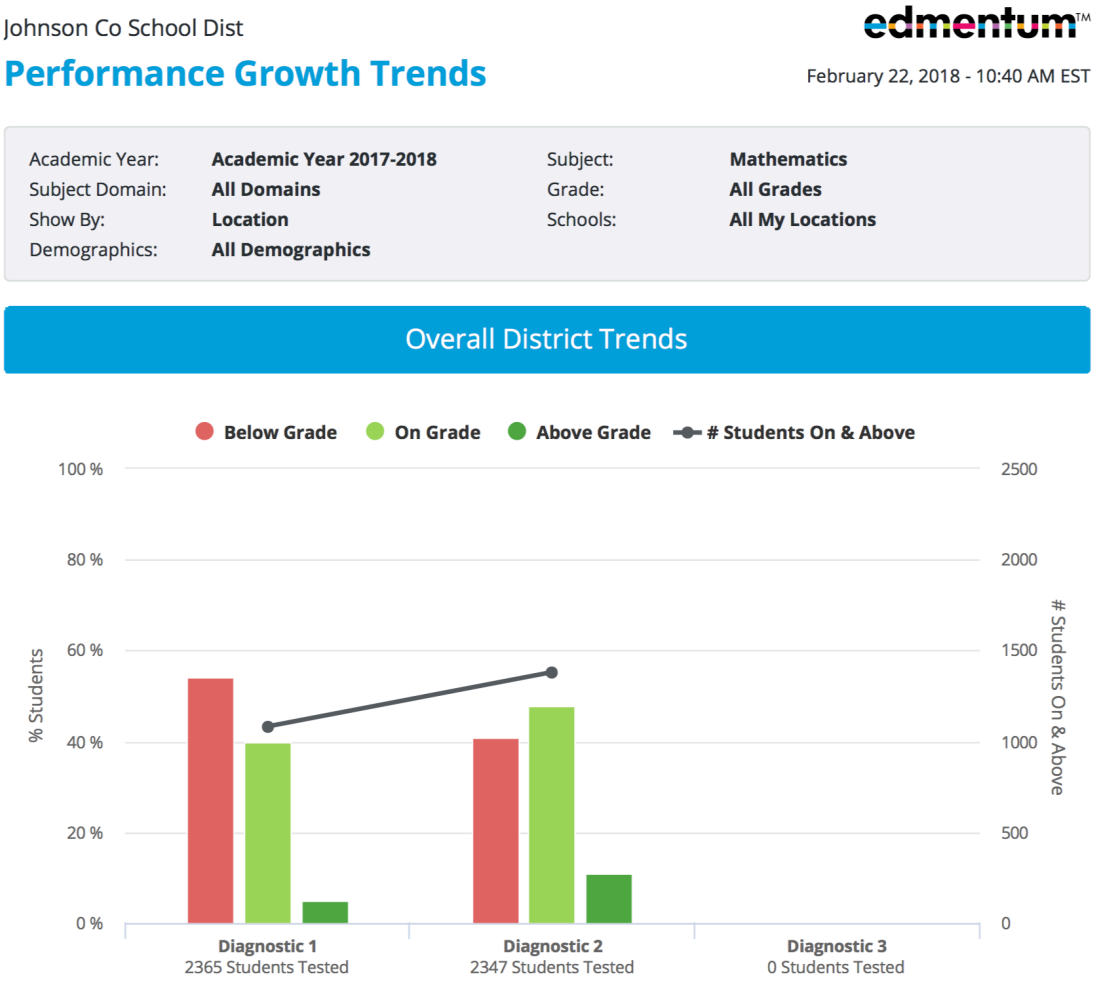

Figure 17: JCSD Mathematics growth from 8/17 – 12/17

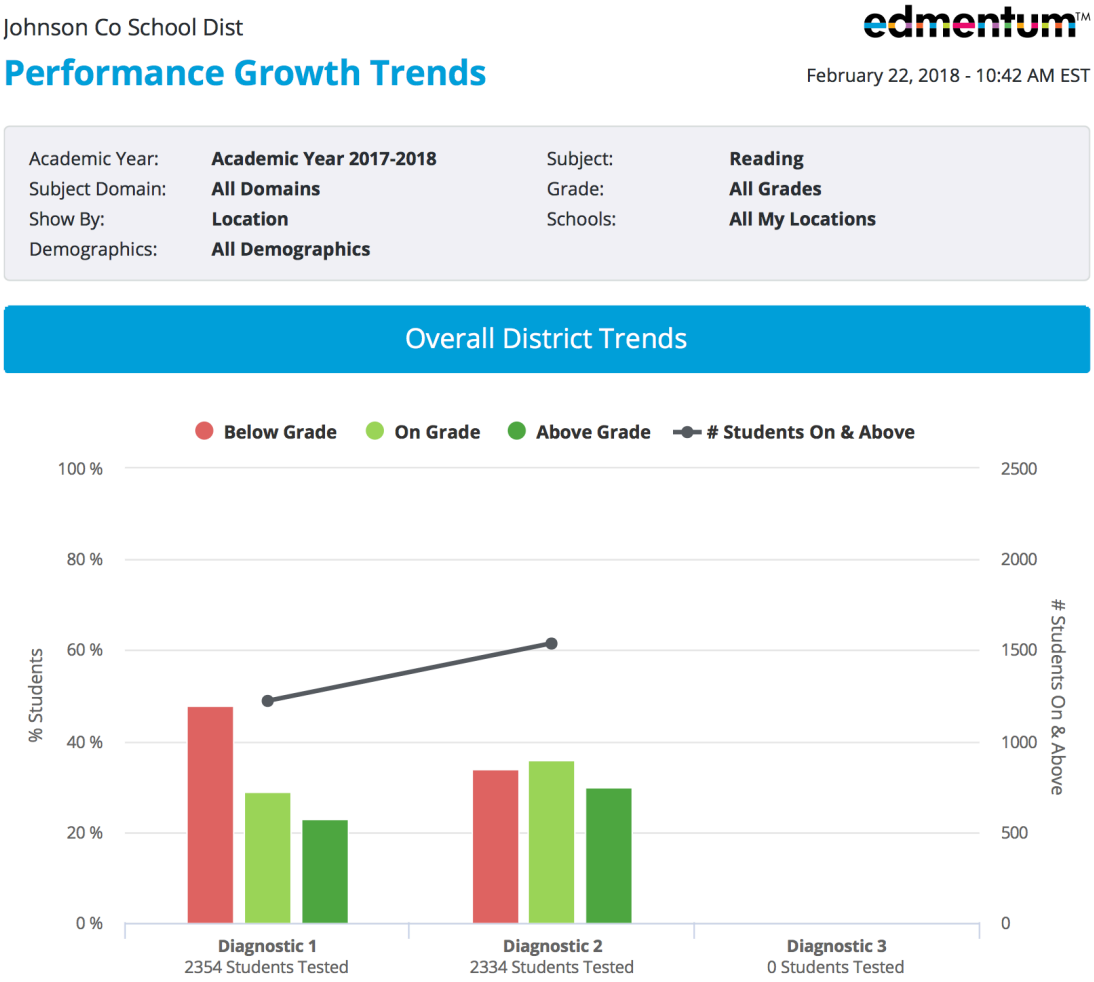

Figure 18: JCSD MReading growth from 8/17 – 12/17

Educator growth and instructional support are key to not only the adoption and implementation of the program but also the expansion to full effectiveness. If your program goal is to supplement instruction then application will be varied from room to room and class to class. However, if the goal of your 1:1 program is to transform education then a high degree of educational support is necessary for success.

The JCSD model included job embedded one-on-one instructional support at all grade levels. To achieve this goal, the JCSD dedicated two instructional technology leaders to support educators at the elementary, middle, and high school levels. In addition, the high school provided support for its teachers by capitalizing on the strengths of their Career and Technical Education(CTE) program instructors across the curriculum.

Processes are being implemented that includes dedicated time for sharing instructional strategies and applications by educators during their Professional Learning Communities(PLC)'s. Additionally, educators may be assigned by their administration to observe other champions of instructional technology integration as well as have the opportunity to request observations on their own.

As a result of this executive summary and capstone work, the superintendent intends to provide an increased level of support documenting successful implementation through video recordings and building on the foundations of the video library provided by this capstone.

Limitations of the study

The executive summary and associated capstone video implementation series was limited in application to the Johnson County Kentucky School District and any other generalizable school districts. The capstone is limited to the early implementation of a 1:1 chromebook initiative in grades 4 – 12. The capstone video series consists of initial footage of successful implementors and is not indicative of the larger teachng population. Although the capstone may be an asset to any

education institution considering a 1:1 chromebook initiative, results can vary based on local initiative.

Next Steps

The next steps of the JCSD 1:1 initiative are centered around expansion of the initiative across the larger teaching population of the district in an effort to truly transform how teachers teach to address how students learn. All students in grades 4-12 have access to a instructional device. All teachers have the same or similar devices. Teachers have received initial training and have ongoing opportunities for job-embedded one-on-one content specific professional growth from instructional coaches.

The district technology leadership team has met to brainstorm activities to expand the knowledge base and grow capacity among other educators. Ideas include:

- required and dedicated PLC instructional technology reporting time
- assigned observations of lead instructors
- process for requested observation of lead instructors
- district monthly share outs of instructional applications
- publish capstone video series on youtube and local shared drive
- share videos as part of required summer professional growth
- advertise videos with school stakeholders and larger community
- expand video series covering all content and grade levels

Reflections

The JCSD 1:1 Chromebook Initiative as observed was and would remain a living breathing initiative. The continuous growth and learning of students, educators, and parents/guardians was evidence of the transformation in learning occurring in a small eastern Kentucky school district. Access and equity to effective and meaningful instructional technology became an expectation of learning.

As much as we educate our students, we are also educating our teachers as well as our community. This new generation of students is not lacking in their technical skills, rather, any lack of educational experience is in the application of those skills to the world in which we live. To overcome this weakness, educators, must strive to continually pursue the use of this learning style in application to solving real world problems. In doing so, our students learn to apply their native skills of the digital world and thus become relevant contributors to the future world in which they will live.

Although there was no means at the time to effectively measure the relationship of the JCSD's 1:1 chromebook initiative to the performance of its students, there clearly were indications that the initiative helped to support a positive, individualized, learning environment where all students were provided equitable access, effectively engaged, and challenged with opportunities for success.

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Appendices

Appendix A

STUDENTS 09.14 AP.122

PPRA Consent/Opt-Out for Specific Activities

Parent/Guardian/Eligible Student Opt Out Form

Notification to school officials for School Year: _____

Directions: Check all that apply and return to your school's principal within thirty (30) days. Be sure to provide the name of your son or daughter.

Child's Name: _____ Grade Level: _____

_____ I do not want my child to use the supervised (filtered) Internet.

_____ I do not want my child to be photographed or videotaped for the yearbook, newspaper, or other school publications.

_____ I do not want my child to go on school-related field trips.

_____ I do not want my child to have his/her work displayed or be publicly recognized for noteworthy accomplishments.

_____ I do not want my child to participate in voluntary school surveys.

_____ I do not want my child to be subjected to corporal punishment (to be paddled).

_____ I do not want my child's name, address, or telephone number released to representatives of the Armed Forces.

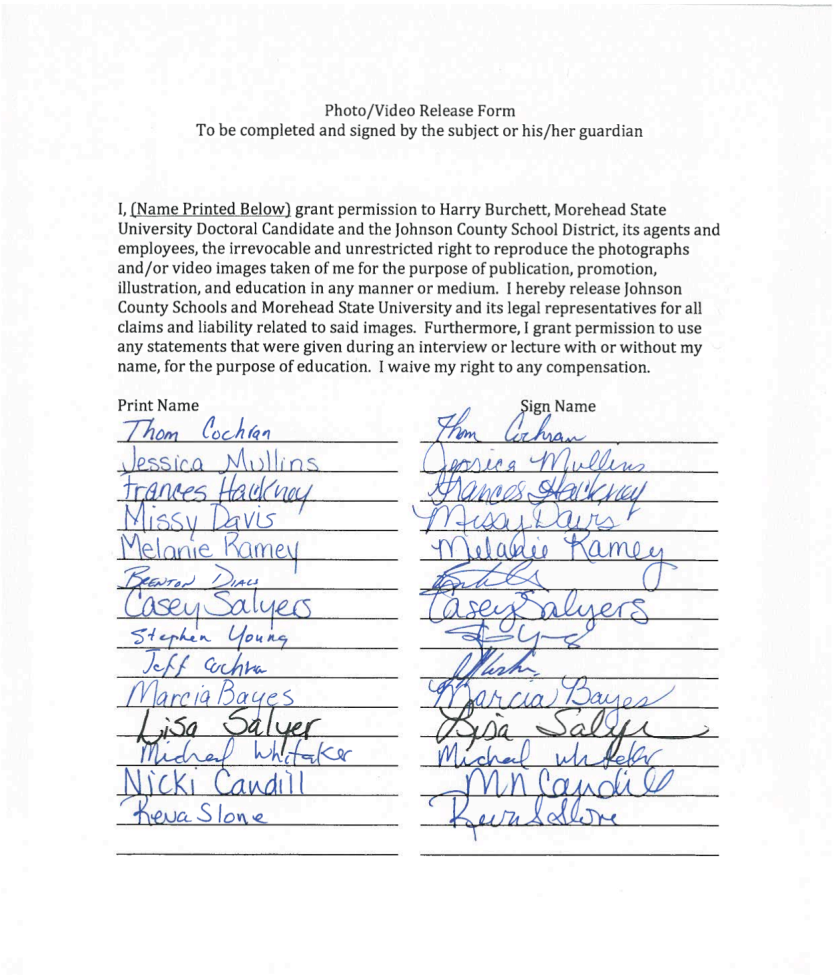
_____ I want to be notified prior to the school's being treated for insects and pests.

_____ _____

(Parent/Guardian/Eligible Student Signature) (Date)

Review/Revised:2/28/11

Appendix B



Photo/Video Release Form
To be completed and signed by the subject or his/her guardian

I, (Name Printed Below) grant permission to Harry Burchett, Morehead State University Doctoral Candidate and the Johnson County School District, its agents and employees, the irrevocable and unrestricted right to reproduce the photographs and/or video images taken of me for the purpose of publication, promotion, illustration, and education in any manner or medium. I hereby release Johnson County Schools and Morehead State University and its legal representatives for all claims and liability related to said images. Furthermore, I grant permission to use any statements that were given during an interview or lecture with or without my name, for the purpose of education. I waive my right to any compensation.

Print Name	Sign Name
Thom Cochran	Thom Cochran
Jessica Mullins	Jessica Mullins
Frances Hackney	Frances Hackney
Missy Davis	Missy Davis
Melanie Ramey	Melanie Ramey
Beaven Davis	
Casey Salyers	Casey Salyers
Stephen Young	
Jeff Cochran	
Marcia Bayes	Marcia Bayes
Lisa Salyer	Lisa Salyer
Michael Whitaker	Michael Whitaker
Nicki Caudill	Nicki Caudill
Reva Slone	Reva Slone

Appendix C

JCSD 1:1 Chromebok Video Series URLS

- JCSD 1:1 Capstone Video 1 - Mrs. Frances Hackney's Sixth Grade ELA Classroom https://youtu.be/NmXobo1QeWE or http://www.johnson.kyschools.us/one2one/HEB1to1Cap1.mp4
- JCSD 1:1 Capstone Video 2 – Mrs. Missy Davis' Seventh Grade Math Classroom https://youtu.be/asF0Ms_H5qE or http://www.johnson.kyschools.us/one2one/HEB1to1Cap2.mp4
- JCSD 1:1 Capstone Video 3 – Mrs. Jessica Mullins' Fifth Grade Math Classroom https://youtu.be/ZFIsnBnAkNI or http://www.johnson.kyschools.us/one2one/HEB1to1Cap3.mp4
- JCSD 1:1 Capstone Video 4 – Mrs. Melanie Ramey's Fourth Grade Math Classroom https://youtu.be/BODsBN1HwsQ or http://www.johnson.kyschools.us/one2one/HEB1to1Cap4.mp4
- JCSD 1:1 Capstone Video 5 – Mrs. Casey Salyer's Fifth Grade Math/Science Classroom https://youtu.be/_XS5hI99omk or http://www.johnson.kyschools.us/one2one/HEB1to1Cap5.mp4
- JCSD 1:1 Capstone Video 6 – Mrs. Casey Salyer Reflections on Learning https://youtu.be/I2cALXij3Ow or http://www.johnson.kyschools.us/one2one/HEB1to1Cap6.mp4
- JCSD 1:1 Capstone Video 7 – JCSD Technology Leadership Summit – Part 1

https://youtu.be/Ll_YQ190t1U or

http://www.johnson.kyschools.us/one2one/HEB1to1Cap7.mp4

- JCSD 1:1 Capstone Video 8 – JCSD Technology Leadership Summit – Part 2

  https://youtu.be/6WT2hk6HKm8 or

  http://www.johnson.kyschools.us/one2one/HEB1to1Cap8.mp4

VITA

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EDUCATION

May, 1995	Bachelor of Science & Bachelor of Arts Morehead State University Morehead, Kentucky
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May, 2001	Master of Arts Morehead State University Morehead, Kentucky
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PROFESSIONAL EXPERIENCES

May 1995 - June 1999	Technology Resource and Social Studies Teacher Johnson County Schools Paintsville, Kentucky
Jan. 1999 - June 2006	Assistant Principal Johnson Central High School Paintsville, Kentucky
July 1999 - Aug. 2013	Director of Technology Johnson County Schools Paintsville, Kentucky
Sept. 2013 - Present	Assistant Superintendent Johnson County Schools Paintsville, Kentucky